

		QuatreX-64 Server 4P		TPC-C Rev 5.1 Report Date: July 8, 2003					
Total System Cost		TPC-C Throughput		Price /Performance		Availability Date			
\$223,664		82,226.46		\$2.72		Oct 21, 2003			
Processors		Database Manager		Operating System		Other Software		Number of Users	
4 AMD Opteron Processors Model 844 (3 HyperTransport Links, 1M Cache, 1.8 GHz)		Microsoft SQL Server 2000 Enterprise Edition SP3		Microsoft Server 2003, Enterprise Server		Microsoft Windows 2000 Server w/COM+ Microsoft Visual C++ Standard		66,000	
Clients					Server				
					RackSaver QuatreX-64 w/4 AMD Opteron Processors Model 844, 3 HyperTransport Links, 1M Cache, 1.8 GHz, 32 GB RAM, 5 Compaq 5304/128 SMART Array Controllers				
					RackSaver RS-1132 w/2 AMD Athlon MP 2400+ Processors, 256K Cache, 2.0 GHz, 1 GB RAM				
					20 RackSaver Disk Pods 270 18GB 15K SCSI Drives, 24 36 GB 15K SCSI Drives				
<u>System Component</u>		<u>Qty</u>		<u>Server</u>		<u>Qty</u>		<u>Each Client</u>	
Processors		4		AMD Opteron Model 844 Processors (1.8 GHz)		2		AMD Athlon MP 2400+ Processors (2.0 GHz)	
Cache				1 M				256 K	
Memory		16		2 GB PC2100 DDR Reg.		2		512 MB P2100 DDR Reg.	
Disk Controllers		5		Compaq 5304 SMART Array Controllers					
Disk Drives		270 24		18 GB SCSI Drives 15K 36 GB SCSI Drives 15K		1		80 GB EIDE	
Total Storage				5.2 TB		1		80 GB	

RackSaver

QuatreX-64 Server AMD Opteron 844 (4P, 1.8GHz) with 4 RackSaver RS-1132

TPC-C REV 5.1

Report Date: 8-July-2003

Description	Part Number	Third Party Brand	Pricing	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
Server Hardware								
Server RS872Q64S Bundle (includes the following)	RS872Q64S			1	34,950	1	34,950	3,500
Quatrex-64 Base System	BBAMQUATREX64					1	0	
AMD Opteron Processor Model 844 (1.8 GHz)	CPAMOP8441.8					4	0	
1.44, 3 1/2 Black	SONY1.44BLACK					1	0	
DDR 2GB PC2100 ECC Reg	MEGED2GBER					16	0	
IDE 40GB 7200 8MB	HDWE4018M72					1	0	
Slimline 24X CDROM	24X1UCD-PANAS					1	0	
Compaq 5304 SMART Array Controller	COCO158939-B21	Compaq/HP		1	995	5	4,975	
DDS4-20/40 Tape Drive	SDT11000/BM			1	800	1	800	
17" Monitor 1280x1024	MOKD17			1	150	1	150	
104 Windows Keyboard	7603			1	8	1	8	
3-button PS/2 Mouse	MILO3BUTTON			1	7	1	7	
Belkin 8 Port Omniview PRO2	CBBEF1DA108T	Belkin		1	250	1	250	
3 Year Warranty, 4 Hour Response Time	EWSSQUATREX3YR4HR					1	0	
						Subtotal	41,140	3,500
Server Storage								
RackStor 4150-250 (includes the following)	RS4150-250			1	4,350	18	78,300	Incl.
4U SCA RAID Chassis/400W black	RMC4D2-6-0S					18	0	
SCSI 18GB 15K 8MB 80P	HDSE18SAM1580					270	0	
SCSI Cable/Internal Daisy Chain	HDC-23C04					36	0	
SCSI Cable/Int 68 pin W/EXT con	HDC-23C06					18	0	
Ext SCSI Cable 2M 68pin 2 VHDCI	CBRA1402-006					18	0	
SCSI Male Terminator	SCA-TERM160M					18	0	
3 Year Warranty, 4 Hour Response Time						18	0	
RackStor 4150-400 (Includes the following)	RS4150-400			1	5,250	2	10,500	Incl.
4U SCA RAID Chassis/400W black	RMC4D2-6-0S					2	0	
SCSI 36GB 15K 8MB 80P	HDSE36S8M1580					24	0	
SCSI Cable/Internal Daisy Chain	HDC-23C04					4	0	
SCSI Cable/Int 68 pin W/EXT con	HDC-23C06					2	0	
Ext SCSI Cable 2M 68pin 2 VHDCI	CBRA1402-006					2	0	
SCSI Male Terminator	SCA-TERM160M					2	0	
3 Year Warranty, 4 Hour Response Time						2	0	
UPS 2200VA RM-3U*	UPAPSU2200RM3U			1	900	4	3,600	0
						Subtotal	92,400	0
Server Software								
Microsoft SQL Server 2000, Enterprise Edition	810-00846	Microsoft		2	16,541	4	66,164	5,850
Microsoft Visual C++ Standard	254-00170	Microsoft		2	109	1	109	Inc Above
Microsoft Server 2003, Enterprise Server	P72-00264	Microsoft		2	2,399	1	2,399	Inc Above
						Subtotal	68,672	5,850

Client Hardware

Client Hardware (includes the following)	RS-1132		1	1,650	4	6,600	1000
RackSaver RS-1100 Chassis	CHRA1100				4	0	0
Tyan S2469GN IDE AMD MP	MBTYS2469GN				4	0	0
1.44, 3 1/2 Black	SONY1.44BLACK				4	0	0
Slimline 24X CDROM	24X1UCD-PANAS				4	0	0
RackSaver PS 1U 300W SPI	RSP-SP1300				4	0	0
AMD Athlon MP Processor 2400+ (2.0 GHz)	CPAMMP2400				8	0	0
IDE 80GB 7200 8MB	HDWE8018M72				4	0	0
DDR 512MB PC2100 ECC Reg	MECODR21512ER				8	0	0
Copper 1U HeatSink/Fan	SRF-1UCOPPER-2				8	0	0
3 Year Warranty, 4 Hour Response Time					4	0	0
Subtotal						6,600	1,000

Client Software

Microsoft Windows 2000 Server	C11-00821	Microsoft	2	738	4	2,952	Inc. Above
Subtotal						2,952	0

Miscellaneous

Linksys 10/100 Switch*	CD7G9L	Linksys	1	50	3	150	0
52U rack 4 post	RCK4P52U		1	700	2	1400	0
Subtotal						1,550	0

Other Discounts*

Total \$213,314 \$10,350

Notes:

* 10% or minimum 2 spares added in place of on-site service

Pricing: 1=RackSaver, 2=Microsoft

Audited by Performance Metrics

Three Year Cost of Ownership: \$223,664
tpmC Rating: 82,226.46
\$ / tpmC: 2.72

MQTh, computed Maximum Qualified Throughput 82,226.46
tpmC

Response Times (in seconds)

	Average	90 th	Max
- New order	0.51	1.09	28.32
- Payment	0.43	1.01	55.70
- Order Status	0.45	1.02	13.65
- Delivery (interactive)	0.10	0.11	1.11
- Delivery (deferred)	7.76	16.60	43.20
- Stock-Level	0.96	1.62	21.18
- Menu	0.10	0.11	63.10

Response time delay added for emulated components

Menu
0.1
Resp.
0.1

Transaction Mix, in percent of total transactions

- New-Order	44.90 %
- Payment	43.03 %
- Order-Status	4.03 %
- Delivery	4.02 %
- Stock-Level	4.02 %

Keying/Think Times (in seconds),

	Min		Average		Max	
- New-Order	18.02	0.0	18.03	12.05	18.12	120.41
- Payment	3.01	0.0	3.03	12.04	3.11	120.41
- Order-Status	2.01	0.0	2.03	10.02	2.10	100.41
- Delivery	2.01	0.0	2.03	5.05	2.10	50.41
- Stock-Level	2.01	0.0	2.03	5.03	2.07	50.41

Test Duration

- Ramp-up time minutes	31
- Measurement interval minutes	120
- Number of checkpoints	4
- Checkpoint interval minutes	29.9
- Number of transactions (all types) Completed in measurement interval	22,859,999